UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,781	10/11/2001	Fred A. Bunn	1875.0660001	7264

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EXAMINER
DUONG, OANH L

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/973,781	BUNN ET AL.
	Examiner	Art Unit	
	Oanh L. Duong	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the

fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection.

Since this application is eligible for continued examination under 37 CFR 1.114,

and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the

previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 06/16/2004 has been entered.

Claim Objections

2.   Claim 1 and 9 are objected to because of the following informalities:

Claims 1 and 9 recite the limitation "the steps". There is insufficient

antecedent basis for this limitation in the claim. Appropriate correction is

required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

3.   Claims 1-8 and 15-17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Chapman (US 6,438,123 B1) in view of Geiger et al. (Geiger)

(US 5,978,022).

Regarding claim 1, Chapman teaches a method for transmitting data over a Data Over Cable Service Interface Specification (DOCSIS) network (col. 3 lines 50-58), comprising the steps of:

communicating a unique index number assigned to header suppression to a cable modem termination system (col. 4 lines 60-67);

receiving a plurality of data packets to be transmitted (col. 12 lines 47-48);

identifying which of the received data packets have a header that should be suppressed (col. 12 lines 20-21);

appending a packet header element to each of the identified data packets, the packet header element containing the index number assigned to the header suppression of the identified data packets (col. 12 lines 27-30); and

suppressing a header of each of the identitied data packets using the header suppression technique (col. 6 lines 14-19).

Chapman does not explicitly teach a plurality of header suppression techniques.

Geiger, in the same field of endeavor, teaches a plurality of header suppression techniques (i.e., use first header compression technique 407, second header compression technique 411, and third compression technique 417, Fig. 4); and selecting a header suppression technique from the plurality of header suppression techniques for each of the identified data packets (col. 3 lines 7-10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a plurality of header suppression techniques of Geiger in the process of header suppressing in

Chapman because such plurality of suppression techniques enable data

packet(s) to be selectively encoded using one of a headers suppression

techniques, thereby allowing maximum performance (Geiger, col. 5 line 14).

Regarding claim 2, Chapman-Geiger teaches concatenating each data

packet within a single DOCSIS transmit burst to form a mixed protocol burst, and

transmitting the mixed protocol burst to the cable modem termination system

(Chapman, col. 8 lines 7-39).

Regarding claim 3, Chapman-Geiger each of the received data packets

that are unknown Internet Protocol (IP) packets are identified as having a header

that should be suppressed in said identifying step (Chapman, col. 6 lines 14-27).

Regarding claim 4, Chapman/Mahler teaches DOCSIS payload header

compression is selected (Chapman, see col. 11 lines 47-54).

Regarding claim 5, Chapman-Geiger teaches each of the received data

packets that are IP/RTP packets with dynamically changing pattern are identified

having a header that should be suppressed (Chapman, see col. 6 lines 20-27).

Regarding claim 6, Chapman-Geiger teaches RTP suppression is

selected for each of the received data packets that are IP/RTP packets with

dynamically changing patterns (Chapman, e.g., see col. 6 lines 20-27 and lines

37-42).

Regarding claim 7, Chapman-Geiger teaches each of the received data

packets that are IP/TCP variable length packets are identified as having a header

that should be suppressed (Geiger, col. 1 lines 56-59).

Regarding claim 8, Chapman-Geiger teaches dynamic delta encoding suppression is selected for each of packets that are IP/TCP variable length (col. 5 lines 5 lines 28-42).

Regarding claim 15, Chapman teaches a system for transmitting data over a Data Over Cable Service Interface Specification (DOCSIS) network (col. 3 lines 50-58), comprising:

one or more cable modems that suppress data packet headers by using header suppression technique (col. 6 lines 14-19); and

a cable modem termination system (CMTS) enabled to expand said data packet headers by using a set of expansion rules corresponding header suppression technique (col. 6 lines 28-36), wherein said one or more cable modems assigns a unique index number to a header suppression (col. 6 lines 46—col. 7 lines 6).

Chapman does not explicitly teach a plurality of header suppression techniques.

Geiger, in the same field of endeavor, teaches a plurality of header suppression techniques (i.e., use first header compression technique 407, second header compression technique 411, and third compression technique 417, Fig. 4); selecting one of the plurality of header suppression technique (col. 3 lines 7-10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a plurality of header suppression techniques of Geiger in the process of header suppressing in Chapman because such plurality of suppression techniques enable data

packet(s) to be selectively encoded using one of a headers suppression techniques, thereby allowing maximum performance (Geiger, col. 5 line 14).

Regarding claim 16, Chapman-Geiger teaches one or more cable modems appends a packet header element to each data packet having a suppressed header, packet header element includes said one or more index number assigned to the header suppression technique used to suppress each data packet (Chapman, e.g., see col. 6 lines 46-62).

Regarding claim 17, Chapman-Geiger teaches one or more cable modems concatenates each data packet having a suppressed header into to a single DOCSIS transmit burst, and to form a mixed protocol burst (Chapman, e.g., see col. 8 lines 33-52).

4.   Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman (US 6,438,123 B1) in view of Geiger et al. (Geiger) (US 5,978,022) in further view of Mahler et al. (Mahler) (US 6,542,504 B1).

Regarding claim 9, Chapman teaches method for expanding data packet headers transmitted over a Data Over Cable Service Interface Specification (DOCSIS) network (Fig. 6), comprising the steps of:

receiving a mixed protocol burst comprising a plurality of data packets having headers suppressed in accordance with a header suppression technique (col. 6 line 44-col. 7 line 6).

identifying each data packet within the mixed protocol burst that has a suppressed header (col. 6 lines 46-53);

Chapman does not explicitly teach a plurality of header suppression techniques and expanding scheme as claimed.

Geiger, in the same field of endeavor, teaches a plurality of header suppression techniques (i.e., use first header compression technique 407, second header compression technique 411, and third compression technique 417, Fig. 4 col. 3 lines 7-10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a plurality of header suppression techniques of Geiger in the process of header suppressing in Chapman because such plurality of suppression techniques enable data packet(s) to be selectively encoded using one of a headers suppression techniques, thereby allowing maximum performance (Geiger, col. 5 line 14).

Mahler, in the same field of endeavor, teaches searching a lookup table to select a set of rules from a plurality of sets of rules for expanding a suppressed header of each of data packets, and expanding a suppressed header of each of the data packets identified according to a set of rules identified (e.g., see col. 6 lines 17-23 and col. 14 line 10-col. 16 line 30). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have utilized the header expanding scheme of Mahler in the process of header de-suppressing in Chapman because such a header expanding scheme would use only a small amount of state and require no update state between endpoints. Thus, packets would have been efficiently transmitted between two link terminators (Mahler, col. 3 line 19-20).

Regarding claim 10, Chapman-Geiger-Mahler teaches an appended header element containing an index number (Chapman, e.g., see col. 6 line 63-col. 7 line12).

Regarding claim 11, Chapman-Geiger-Mahler teaches using index numbers contained in each appended packet header element to search the lookup table (see Chapman e.g., see col. 4 lines 65-67).

Regarding claim 12, Chapman-Geiger-Mahler discloses DOCSIS protocol header expansion rules are used (Chapman, e.g., see col. 11 lines 52-54).

Regarding claim 13, Chapman-Geiger-Mahler discloses RTP expansion rules are used (Chapman, e.g., see col. 6 line 14-col. 7 line12).

Regarding claim 14, Chapman-Geiger-Mahler teaches expanding a suppressed header (Chapman, col. 6 lines 17-19), and Dynamic delta encoding rule are used for IP/TCP variable length packets (Geiger, col. 5 lines 27-42).

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Oanh L. Duong whose telephone number is (703) 305-0295. The examiner can normally be reached on Monday- Friday, 8:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain T. Alam can be reached on (703) 308-6662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

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direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free).

O.D
August 7, 2004

HOSAIN ALAM
SUPERVISORY PATENT EXAMINER